**CLIL lesson – 5.**

**Subject: ENGLISH/BIOLOGY**

**Teachers**: Mgr. Polozsányiová Evelyn and Mgr. Ľubomír Húšťava (Biology teacher)

**Class:** 5.A

**Lenght of lesson**: 90 minutes

**Topic:** The beauty of school greenery

### Teaching methods: Teacher-centered instruction, cooperative learning and group work, practical learning

**Training aids**: spreader with spreader, filter paper, beakers, funnel, test tubes, stand, fresh green leaves, sand, dropper, ruler, encyclopedia of medicinal plants, thermometer, square grid, textbook, worksheet, writing tools, chemicals - ethanol, calcium carbonate, gasoline

**Educational goals:** The main goal is to teach students to work in groups, to gain neccessary information of greenery in our school yard via observation to be able to participate on an experiment and to accomplish it.

**Vocabulary:**

Beaker-kadička

test tubes-skúmavky

dropper-kvapkadlo

funnel-lievik

filter paper-filtračný papier

spreader - roztieračka

thermometer - teplomer

square grid – štvorcová sieť

bush – krík

coniferous and deciduous trees – ihličnaté a listnaté stromy

inflorescences – v súkvetí

compound leaves – zložené listy

content - obsah

**The structure of the lesson:**

1.motivation discussion and instruction

2.students divided into 6 groups of 5 children

3.three groups doing a practical experiment in the chemical laboratory and the other three groups doing an observation of the school yard and collecting data for their excercises on the worksheet at the same time

4.the groups switch their places after 45 minutes

5. checking/ comparing the results on the worksheet and of the experiment

**Main activity:** blending real-life observation with knowledge of biology, maths and scientific experiments

**Evaluation/Assesment:** each group´s data from observation and the results of the experiments were evaluated orally and positives/ difficulties were picked –up

**Worksheet with tasks:**

Pracovný list s úlohami **/ Worksheet with tasks:**

1. Zisti koľko stromov sa nachádza na školskom dvore, aké je zastúpenie ihličnatých a listnatých stromov:
2. **Find out how many trees are in the school yard, what is the representation of coniferous and deciduous trees:**
3. Aké ovocné stromy sa pestujú na školskom dvore? Napíš ich názvy.Všimni si tvar listov a ich žilnatinu, nakresli jeden list. Urči aký má list okraj. Pomôž si s učebnicou.

**2. What fruit trees are grown in the school yard? Write their names. Notice the shape of the leaves and their veins, draw one leaf. Determine the edge of the leaf. Help yourself with the textbook.**

1. Vyskytujú sa v školskej záhrade aj ovocné dreviny? Napíš ako sa volajú. Čo sa dá vyrobiť z ich plodov:

**3. Are there fruit trees in the school garden? Write their name. What can be made from their fruits:**

1. Na školskom dvore rastú aj liečivé byliny. Vieš napísať aspoň dva druhy? Všimni si ich kvety- vyrastajú v súkvetí alebo jednotlivo. Pomôž si encyklopédiou liečivých rastlín.

**4. Medicinal herbs also grow in the school yard. Can you write at least two kinds? Notice their flowers - they grow in inflorescences or individually. Help yourself with the encyclopedia of medicinal plants.**

1. Ako sa volá rastlina s bielymi kvetmi a chutnými červenými plodmi, z ktorých sa pripravuje džem?

**5. What is the name of the plant with white flowers and tasty red fruits, from which jam is made?**

1. Ktorý strom má zložené listy a ktorý je najvyšší? Skús odhadnúť jeho výšku.

**6. Which tree has compound leaves and which is the tallest? Try to guess its height.**

1. Pozoruj, pomenuj a nakresli listy dvoch liečivých rastlín z bylinkovej záhradky, urči aký majú okraj listov.

**7. Observe, name and draw the leaves of two medicinal plants from the herb garden, determine the edge of the leaves.**

1. Pomocou teplomera zmeraj teplotu vo výške asi 1 meter nad zemou nad asfaltom ihriska, nad zatrávnenou plochou a pod stromom. Vysvetli prípadné rozdielne hodnoty teplôt:

**8. Using a thermometer, measure the temperature at a height of about 1 meter above the ground above the asphalt of the playground, above the grassy area and under the tree. Explain possible different temperature values:**

Teplota nameraná nad asfaltom ihriska:

Teplota nameraná nad zatrávnenou plochou:

Teplota nameraná pod stromom:

**Temperature measured above the playground asphalt: .................................**

**Temperature measured above the grassed area:.................................**

**Temperature measured under the tree:...................................**

1. Ako sa volá strom, ktorý je symbolom Slovanov? Nakresli jeho list, urč či je jednoduchý alebo zložený a aký má okraj.

**9.What is the name of the tree that is a symbol of the Slavs? Draw its leaf, determine whether it is simple or compound and what its edge is.**

1. Vypočítaj obsah listu:
2. Prilož list na štvorcovú sieť a obkresli ho na ňu. Zmeraj pravítkom dĺžku jednej strany štvorčeka a zapíš ju: a=..................cm
3. Spočítaj všetky štvorčeky , ktoré ležia celé vnútri plochy,  ich počet označ S1.
4. Spočítaj všetky štvorčeky, ktoré ležia v ploche listu čiastočne a označ ich počet S2
5. Veľkosť meranej plochy listu vypočítaj podľa vzťahu:

S= S1+S2/2. Výsledok bude v cm štvorcových.

**10. Calculate the content of the leaf:**

**1. Place the leaf on the square grid and trace it on it. Measure the length of one side of the square with a ruler and write it down: a=..................cm**

**2. Count all the squares that lie entirely inside the surface, mark their number as S1.**

**3. Count all the squares that partially lie in the surface of the leaf and mark their number as S2**

**4. Calculate the size of the measured leaf area according to the formula:**

**S=S1+S2/2. The result will be in square cm.**

1. Oči (Pozorne si prečítaj text.)

Mišo s Janom sa v lete spolu bicyklovali. Potom si sadli pod strom pri rybníku

a odpočívali. Viacerí ,,obyvatelia´´ rybníka a jeho okolia ich pozorne sledovali. Neskôr na strome vyrušili pavúka križiaka a na kre hladného kliešťa. Dážďovku a slimáka vyrušilo dupanie chlapcov. Kapra plávajúceho vo vode vystrašil kameň, ktorý Mišo hodil do vody. Len Jano ako skúsený pozorovateľ postrehol aj rýchly pohyb dafnie. Koľko očí pozorovalo chlapcov?

**Eyes (Read the text carefully.)**

**Mišo and Jan went cycling together in the summer. Then they sat down under a tree by the pond and rested. Several "residents" of the pond and its surroundings watched them carefully. Later, they disturbed a crusader spider on a tree and a hungry tick in a bush. The earthworm and the snail were disturbed by the stomping of the boys. A carp swimming in the water was frightened by a stone that Mišo threw into the water. Only Jano, as an experienced observer, also noticed the fast movement of daphnia. How many eyes watched the boys?**

1. Doplň zvieracie rodiny / **Complete the animal families**

Kohút + sliepka = Rooster + hen =

Kocúr + mačka = Tomcat + cat =

Gunár + hus = Drake + goose =

Medveď + medvedica = Bear + she-bear =

Pes + sučka = Dog + female =

Cap + koza = Buck + goat =

Kôň + kobyla = Horse + mare =

**Pokus: Izolácia chlorofylu/listového farbiva/ z listov stromov**.

**Pomôcky**: roztieračka s roztieradlom, filtračný papier, kadičky, lievik,skúmavky, stojan,

čerstvé zelené listy, piesok, kvapkadlo

**Chemikálie**: etanol, uhličitan vápenatý, benzín

**Postup**: 1.listy rozstriháme a vložíme do kadičky, pridáme štipku uhličitanu vápenatého

2. zalejeme vriacou vodou

3. sparené listy prenesiem do roztieračky a rozotrieme s roztieradlom spolu s pieskom na kašu

4. pridáme etanol a znovu rozotrieme

5. prefiltrujeme vo filtračnej aparatúre/ lievik, filtračný papier, stojan, kadička/

**Pozorovanie**:

6. Alkoholový extrakt chlorofylu/ 3ml/ zmiešame s 3 kvapkami vody a 6ml benzínu, pretrepeme v skúmavke

**Pozorovanie**: V skúmavke sa vytvorili................vrstvy. Vrchná benzínová má.............farbu a spodná alkoholová má..........................farbu.

**Experiment: Isolation of chlorophyll/leaf pigment/ from tree leaves.**

**Tools**: spreader with spreader, filter paper, beakers, funnel, test tubes, stand,

fresh green leaves, sand, dropper

**Chemicals:** ethanol, calcium carbonate, gasoline

**Procedure:** 1. cut the leaves and put them in a beaker, add a pinch of calcium carbonate

2. pour it with boiling water

3. transfer the steamed leaves to a spreader and spread them with a spreader together with sand to make a slurry

4. add ethanol and spread again

5. filter in a filter equipment/funnel, filter paper, stand, beaker/

**Observation:**

6. Alcohol extract of chlorophyll/ 3ml/ mix with 3 drops of water and 6ml of gasoline, shake in a test tube

**Observation:** ................layers have been formed in the test tube. The top gasoline layer has.............color and the bottom alcohol layer has..........................color.



